

### **Amendments to the Claims:**

The following is a complete listing of the claims that replaces all previous versions:

### **Listing of the Claims:**

1. (currently amended) A vaporizer for vaporizing a sterilant from its liquid phase in a vapor phase sterilization system having a pressure below atmospheric pressure, ~~the said~~ vaporizer comprising:

an inlet configured whereby to receive the sterilant in its liquid phase;

an outlet configured whereby to discharge the sterilant in its vapor phase;

a removable core including a circuitous path, wherein the removable core is positioned at least partially between the inlet and the outlet, and wherein the circuitous path is configured whereby to collect a first portion of non-vaporizable ingredients of the sterilant; and

a flow restriction between the circuitous path and the outlet, wherein the flow restriction is configured to cause a second portion of the non-vaporizable ingredients to collect on a surface of the vaporizer prior to the vapor phase sterilant being admitted to a sterilization chamber; and

a vacuum pump in fluid communication with the vaporizer, wherein the vacuum pump is configured to create a vacuum within the circuitous path.

2. (currently amended) ~~The~~A vaporizer according to claim 1 wherein the circuitous path comprises a plurality of baffles.

3. (currently amended) ~~The~~A vaporizer according to claim 1 wherein the circuitous path comprises an inner tube positioned concentrically within an outer tube, the circuitous path

including a first portion in a first direction between the inner tube and the outer tube and a second portion in a second opposite direction through the inner tube.

4. (currently amended) TheA vaporizer according to claim 1 wherein the circuitous path comprises at least one portion in which an effective cross-sectional area of the portion increases by at least 89% ~~whereby~~ to decrease the speed of the sterilant passing therethrough.

5. (currently amended) A vaporizer for vaporizing a sterilant from its liquid phase in a vapor phase sterilization system having a pressure below atmospheric pressure, ~~thesaid~~ vaporizer comprising:

an inlet configured ~~whereby~~ to receive the sterilant in its liquid phase;

an outlet tube configured ~~whereby~~ to discharge the sterilant in its vapor phase;

a removable core including a circuitous path, wherein the removable core is positioned at least partially between the inlet and the outlet tube, and wherein the removable core is configured whereby to collect non-vaporizable ingredients of the sterilant;

a flow restriction between the circuitous path and a portion of the outlet tube; and wherein the flow restriction comprises an orifice defined in an orifice plate positioned one of over an opening of the outlet tube and within the outlet tube, wherein the orifice includes having a cross-sectional area no greater than 44.1% of a cross-sectional area of the circuitous path immediately upstream of the orifice; and

a vacuum pump in fluid communication with the vaporizer, wherein the vacuum pump is configured to create a vacuum within the circuitous path.

6. (currently amended) TheA vaporizer according to claim 1 wherein the circuitous path comprises at least two turns, each of which are at least 90 degrees.

7. (currently amended) TheA vaporizer according to claim 1 wherein the flow restriction is configured to ~~can~~ retain the sterilant vapor within the vaporizer for at least 17 milliseconds.

8. (currently amended) TheA vaporizer according to claim 17 wherein the flow restriction is configured to ~~can~~ retain the sterilant vapor within the vaporizer for at least 26 milliseconds.

9. (currently amended) A method of providing a vapor phase sterilant to a sterilization chamber comprising the steps of:

creating temperature and pressure conditions within a vaporizer sufficient to vaporize the sterilant ~~said pressure condition comprising a pressure below atmospheric pressure;~~

using a vacuum inducing device to lower the pressure within the vaporizer to a pressure below atmospheric pressure;

admitting the sterilant, in its liquid phase, into the vaporizer and vaporizing the sterilant;

~~admitting no carrier gas into the vaporizer;~~

passing the sterilant through a circuitous path; ~~and~~

collecting non-vaporizable components of the sterilant on surfaces forming the circuitous path;

then passing the sterilant, in its vapor phase, through a flow restriction; and

passing the sterilant, in its vapor phase, out of the vaporizer.

10. (currently amended) TheA method according to claim 9 wherein the step of passing the sterilant through the a circuitous path comprises passing the sterilant past a plurality of baffles.

11. (currently amended) TheA method according to claim 9 wherein the step of passing the sterilant through the circuitous path comprises passing the sterilant in a first direction through an inner tube positioned concentrically within an outer tube and in a second opposite direction between the inner tube and the outer tube.

12. (currently amended) TheA method according to claim 9 wherein the step of passing the sterilant through the a circuitous path comprises passing the sterilant through at least one portion in which an effective cross-sectional area of the portion increases by at least 89% thereby decreasing the speed of the sterilant passing therethrough.

13. (currently amended) A method of providing a vapor phase sterilant to a sterilization chamber comprising the steps of:

creating temperature and pressure conditions within a vaporizer sufficient to vaporize the sterilant;

using a vacuum inducing device to lower the pressure within the vaporizer to a pressure below atmospheric pressure;

admitting the sterilant, in its liquid phase, into the vaporizer and vaporizing the sterilant;

passing the sterilant through a circuitous path; ~~and~~

collecting non-vaporizable components of the sterilant on surfaces forming the circuitous path;

then passing the sterilant, in its vapor phase, through a flow restriction; and  
passing the sterilant, in its vapor phase, out of the vaporizer; and  
wherein the step of passing the sterilant through the circuitous path comprises passing the  
sterilant through an orifice having a cross-sectional area no greater than 44.1% of a cross-  
sectional area of the circuitous path immediately upstream of the orifice.

14. (currently amended) TheA method according to claim 9 wherein the step of passing the  
sterilant through the circuitous path comprises turning ~~having~~ the sterilant ~~make~~ at least two  
times turns, wherein each turn is each of which are at least 90 degrees.

15. (currently amended) TheA method according to claim 9 wherein the non-vaporizable  
components comprise stabilizing compounds for the liquid phase of the sterilant.

16. (currently amended) TheA method according to claim 9 wherein the sterilant comprises  
hydrogen peroxide.

17. (currently amended) A method of providing a vapor phase sterilant to a sterilization chamber  
comprising the steps of:

creating temperature and pressure conditions within a vaporizer sufficient to vaporize the  
sterilant;

using a vacuum inducing device to lower the pressure within the vaporizer to a pressure  
below atmospheric pressure;

admitting the sterilant, in its liquid phase, into the vaporizer and vaporizing the sterilant;

passing the sterilant through a circuitous path; and

collecting non-vaporizable components of the sterilant on surfaces forming the circuitous path;

then passing the sterilant, in its vapor phase, through a flow restriction; and

passing the sterilant, in its vapor phase, out of the vaporizer; ~~and~~

wherein at least 75% of the non-vaporizable components are removed from the sterilant prior to the step of passing the sterilant out of the vaporizer.

18. (currently amended) TheA method according to claim 17 wherein substantially all of the non-vaporizable components are removed from the sterilant prior to the step of passing the sterilant out of the vaporizer.

19. (currently amended) TheA method according to claim 9 comprising retaining ~~wherein~~ the sterilant ~~remains~~ within the vaporizer for at least 17 milliseconds.

20. (currently amended) TheA method according to claim ~~19~~ 9 comprising retaining ~~wherein~~ the sterilant ~~remains~~ within the vaporizer for at least 26 milliseconds.

21. (new) A vaporizer for vaporizing a liquid sterilant having non-vaporizable components therein, the vaporizer comprising:

a housing defining an inner space; and

a core configured to be at least partially positioned within the inner space and removed from the inner space, wherein the core comprises:

at least two fins extending toward the housing when the core is at least partially positioned within the inner space;

a circuitous flow path defined by the fins, wherein the circuitous flow path is configured to cause the vaporized liquid sterilant to deposit a first portion of the non-vaporizable components on at least one of the fins and the housing; and

a recess defined in the core, wherein the recess is configured to receive at least a first portion of an outlet tube configured to be in fluid communication with a sterilization chamber, the recess comprising:

an open end; and

a closed end, wherein the first portion of the outlet tube is configured to be positioned proximate to the closed end of the recess to create a flow restriction for the vaporized liquid sterilant and thereby cause a second portion of the non-vaporizable components to deposit on one of walls of the recess and the outlet tube.

22. (new) The vaporizer according to claim 21 comprising an outlet tube, wherein the outlet tube comprises an orifice plate having an orifice defined therethrough, wherein the orifice plate is configured to provide a second flow restriction.

23. (new) The vaporizer according to claim 21 comprising an outlet tube, wherein the outlet tube comprises a reducing section, and wherein the reducing section is configured to provide a second flow restriction.